

AMENDMENTS TO THE CLAIMS

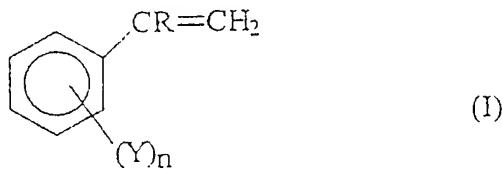
This listing of claims will replace all prior versions, and listings of claims in the application:

Claim 1 (Currently Amended): An expandable~~Expandable~~ vinylaromatic polymer, comprising polymers which comprise:

- a) a polymeric matrix obtained by polymerizing~~polymerizing~~ 50-100% by weight of one or more vinylaromatic monomers and 0-50% by weight of a copolymerizable monomer;
- b) 1-10% by weight, calculated with respect to the polymer (a), of an expanding agent englobed~~embedded~~ in the polymeric matrix[[::]] ;
- c) 0.01-20% by weight, calculated with respect to the polymer (a), of carbon black homogeneously distributed in the polymeric matrix and having an average diameter ranging from 30 to 2000 nm, a surface area ranging from 5 to 40 m²/g, a sulfur content ranging from 0.1 to 2000 ppm and an ash content ranging from 0.001 to 1%.

Claim 2 (Currently Amended): The polymers according to claim 1, wherein the carbon black ~~is characterized by~~has a weight loss with heat ranging from 0.001 to 1%, an iodine number ranging from 0.001 to 20 g/kg and an absorption value of dibutylphthalate (DBPA) ranging from 5 to 100 ml/(100 g).

Claim 3 (Currently Amended): The polymers according to claim 1, wherein the vinylaromatic monomer is selected from ~~those corresponding to the group consisting of~~ monomers the following general formula:



wherein R is a hydrogen or a methyl group, n is zero or an integer ranging from 1 to 5 and Y is a halogen, or an alkyl or alkoxy radical having from 1 to 4 carbon atoms.

Claim 4 (Currently Amended): The polymers according to claim 3, wherein the vinylaromatic ~~monomers~~ monomer having general formula (I) [[are]] is used in a mixture, of up to 50% by weight, with at least one other copolymerizable ~~monomers~~ monomer selected from the group consisting of (meth)acrylic acid, C₁-C₄ alkyl esters of (meth)acrylic acid, amides of (meth) acrylic acid, nitriles of (meth)acrylic acid, butadiene, ethylene, divinylbenzene, and maleic anhydride.

Claim 5 (Currently Amended): The polymers according to claim 4, wherein the copolymerizable ~~monomers~~ are monomer is acrylonitrile and methylmethacrylate.

Claim 6 (Currently Amended): The polymers according to claim 1, wherein the carbon black has an average diameter ranging from 100 to 1000 nm, a surface area ranging from 8 to 20 m²/g, (measured according to ASTM D-6556), a sulfur content ranging from 1 to 500 ppm, an ash residue ranging from 0.01 to 0.3% (measured according to ASTM D-1506), a weight loss with heat (measured according to ASTM D-1509) ranging from 0.01 to 0.5%, ~~a~~ DBPA an absorption value of dibutylphthalate (measured according to ASTM D-2414) of 20-80 ml/(100 g) and an iodine number (measured according to ASTM D-1510) ranging from 0.1 to 10 g/kg.

Claim 7 (Previously Presented): The polymers according to claim 1, wherein the carbon black is used in a quantity ranging from 0.1 to 5% by weight, with respect to the polymer.

Claim 8 (Currently Amended): An expandable article, Expandable articles comprising:

[[the]] an expandable vinylaromatic polymers polymer according to claim 1, having a density ranging from 5 to 50 g/l and a thermal conductivity ranging from 25 to 50 mW/mK, ~~generally even over at least~~ 10% lower than that of equivalent-expanded materials without carbon black.

Claim 9 (Currently Amended): A process for the preparation of an expandable vinylaromatic polymers which comprises polymer, comprising:

polymerizing in aqueous suspension one or more vinylaromatic monomers, optionally together with at least one polymerizable comonomer in a quantity of up to 50% by weight, in the presence of a carbon black having an average diameter ranging from 30 to 2000 nm, a surface area ranging from 5 to 40 m²/g, a sulfur content ranging from 0.1 to 2000 ppm and an ash content ranging from 0.001 to 1%, and in the presence of a peroxide radicalic initiator, optionally containing at least one aromatic ring, and at least one expansion agent added before, during or at the end of the polymerization.

Claim 10 (Currently Amended): The process according to claim 9, wherein the carbon black ~~is characterized by~~ has a weight loss with heat ranging from 0.001 to 1%, an

iodine number ranging from 0.001 to 20 g/kg and a ~~DBPA value~~ an absorption value of dibutylphthalate ranging from 5 to 100 ml/(100 g).

Claim 11 (Currently Amended): The process according to claim 9, wherein the polymerization is carried out in the presence of an organic suspending agent, an inorganic suspending agent or both agents of both the organic and inorganic type.

Claim 12 (Currently Amended): The process according to claim 11, wherein the inorganic suspending ~~agents are~~ agent is coadjuvated by an anionic surface-active agent ~~agents~~ or sodium metabisulfite.

Claim 13 (Previously Presented): The process according to claim 9, wherein the polymerization in suspension is effected through a solution of vinylaromatic polymer in the monomer, or mixture of monomers, in which the concentration of polymer ranges from 1 to 30% by weight.

Claim 14 (Currently Amended): The process according to claim 9, wherein, at the end of the polymerization, beads of polymer are obtained in a substantially spherical form, with an average diameter ranging from 0.2 to 2 mm inside which the carbon black filler is homogeneously dispersed.

Claim 15 (Currently Amended): The process according to claim 14, wherein the polymer beads obtained at the end of the polymerization are washed with a non-ionic surface-active agent ~~agents~~.

Claim 16 (Currently Amended): The process according to claim 9, wherein during the polymerization, at least one polymerization flame-retardant agent is added in a quantity ranging from 0.1 to 8% by weight, with respect to the weight of the resulting polymer.

Claim 17 (Currently Amended): The process according to claim 9, wherein the at least one expansion agent is added during the polymerization phase and is selected from the group consisting of aliphatic hydrocarbons comprising 3 to 6 carbon atoms, [[of]] cycloaliphatic hydrocarbons comprising from 3 to 6 carbon atoms, halogenated derivates of aliphatic hydrocarbons comprising from 1 to 3 carbon atoms, carbon dioxide and water.

Claim 18 (Currently Amended): A process for preparing, in mass and continuously, an expandable vinylaromatic polymer polymers which comprises, the following steps in series:

- i. feeding a vinylaromatic polymer, as described above, to an extruder, together with a carbon black filler, having an average diameter ranging from 30 to 2000 nm, a surface area ranging from 5 to 40 m²/g, a sulfur content ranging from 0.1 to 2000 ppm and an ash residue ranging from 0.001 to 1%;
- ii. heating the vinylaromatic polymer to a temperature higher than the relative melting point, to obtain a molten polymer;
- iii. injecting [[the]] an expanding agent and optionally an additive possible additives such as flame retardant agents, into the molten polymer before extrusion through a die; and
- iv. forming expandable beads, through a die, in a substantially spherical form with an average diameter ranging from 0.2 to 2 mm.

Claim 19 (Currently Amended): The process according to claim 18, wherein the carbon black filler is characterized by has a weight loss with heat ranging from 0.001 to 1%, an iodine number ranging from 0.001 to 20 g/kg and a DBPA value an absorption value of dibutylphthalate ranging from 5 to 100 ml/(100 g).

Claim 20 (Currently Amended): The process according to claim 18, further comprising: wherein the expandable beads produced are pre-treated using methods generally applied to beads produced with conventional processes which comprise:

- a) pretreating coating the expandable beads by coating with a liquid antistatic agent, to obtain pre-treated beads;
- b) applying [[the]] a coating to the pre-treated beads thus treated, said coating essentially consisting of comprising (i) a mixture of mono-, di- and tri-esters of glycerin with fatty acids and of (ii) a metallic stearates stearate such as zinc stearate magnesium stearate or (iii) a combination of (i) and (ii) thereof;

wherein[[,]] the liquid antistatic agent is selected from the group consisting of amines, tertiary ethoxylated alkylamines [[,]] and ethylene oxide[[, and]] propylene oxide copolymers.

Claim 21 (Previously Presented): The process according to claim 20, wherein the carbon black filler is also added to the coating together with the mixture of esters.

Claim 22 (New): The process according to claim 18, wherein a flame retardant is added in step iii.

Claim 23 (New): The process according to claim 18, wherein the metallic stearate is zinc stearate or magnesium stearate.